

This listing of the claims replaces all prior versions and listings of claims in the application:

Listing of Claims

1. (currently amended): An isolated protein complex having a first protein which is selected from the group consisting of:

(a) Tsg101,

(b) a Tsg101 fragment, and

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(c) ~~or a homologue or derivative of~~ Tsg101 or said Tsg101 fragment, having an amino acid sequence that is at least about 50% identical to that of Tsg101 or said Tsg101 fragment; or fragment thereof

interacting with a second protein which is selected from the group consisting of:

(i) HIV GAG polypeptide,

(ii) a HIV GAG polypeptide fragment, and

(iii) ~~or a homologue or derivative of~~ HIV GAG polypeptide or said HIV GAG polypeptide fragment, having an amino acid sequence that is at least about 50% identical to that of HIV GAG polypeptide or said HIV GAG polypeptide fragment.

2. (original): The isolated protein complex of Claim 1, wherein said second protein is HIV GAGp6 or a fragment thereof.

3. (currently amended): The isolated protein complex of Claim 1, wherein said first protein is a fusion protein containing (a) Tsg101 or (b) ~~a Tsg101 homologue or (c) a Tsg101 fragment.~~ said Tsg101 fragment or (c) said homologue.

4. (currently amended): The isolated protein complex of Claim 1, wherein said second protein is a fusion protein containing (a) HIV GAG polypeptide or (b) ~~a HIV GAG homologue or (c) a HIV GAG fragment.~~ said HIV GAG polypeptide fragment or (c) said homologue.

5. (currently amended): An isolated protein complex having a first protein which is Tsg101 or ~~a homologue or derivative of Tsg101 fragment thereof~~, or a homologue thereof having an amino acid sequence that is at least 50% identical to that of Tsg101 or said Tsg101 fragment, interacting with a second protein which is HIV GAGp6 polypeptide or ~~a homologue or derivative of HIV GAGp6 fragment thereof~~, or a homologue thereof having an amino acid sequence that is at least 50% identical to that of HIV GAGp6 polypeptide or said HIV GAGp6 polypeptide fragment.

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6. (currently amended): The isolated protein complex of Claim 5, wherein said first protein is a fusion protein containing (a) Tsg101 or (b) ~~a Tsg101 homologue or (c) a~~ said Tsg101 fragment or (c) said homologue.

7. (currently amended): The isolated protein complex of Claim 5, wherein said second protein is a fusion protein containing (a) HIV GAGp6 polypeptide or (b) ~~a HIV GAGp6 homologue or (c) a~~ said HIV GAGp6 fragment or (c) said homologue.

8. (currently amended): An isolated protein complex comprising:
(a) a first protein which is selected from the group consisting of
(i) Tsg101 protein,
(ii) a Tsg101 protein homologue having an amino acid sequence at least 90% identical to that of Tsg101 and capable of interacting with HIV GAGp6,
(iii) a Tsg101 protein fragment containing the Tsg101 UEV domain, and
(iv) a fusion protein containing said Tsg101 protein, said Tsg101 protein homologue or said Tsg101 protein fragment; and
(b) a second protein selected from the group consisting of
(1) HIV GAG polypeptide,
(2) a HIV GAG polypeptide fragment,
(2)(3) a HIV GAG polypeptide homologue having an amino acid sequence at least 90% identical to that of HIV GAG polypeptide and capable of interacting with Tsg101,

(3)(4) HIV GAGp6 protein,
(4)(5) a HIV GAGp6 homologue having an amino acid sequence at least 90% identical to that of HIV GAGp6 polypeptide and capable of interacting with Tsg101,
(5)(6) a HIV GAGp6 fragment capable of interacting with Tsg101, and
(6)(7) a fusion protein containing said HIV GAG polypeptide, said HIV GAG polypeptide fragment, said HIV GAG polypeptide homologue, said HIV GAGp6 protein, said HIV GAGp6 homologue or said HIV GAGp6 fragment.

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could 9. (original): The isolated protein complex of Claim 8, wherein said HIV GAGp6 fragment contains an amino acid sequence of SEQ ID NO:25 or SEQ ID NO:26.

10. (original): The isolated protein complex of Claim 8, wherein said HIV GAGp6 fragment contains an amino acid sequence of SEQ ID NO:31 or SEQ ID NO:32.

11. (original): The isolated protein complex of Claim 8, wherein said HIV GAGp6 fragment has a contiguous span of at least 10 amino acid residues of a naturally occurring HIV GAGp6, said contiguous span containing a P(T/S)AP late domain motif.

12. (currently amended): An isolated protein complex comprising a first protein which is Tsg101 or a ~~homologue or derivative of~~ Tsg101 fragment thereof, or a homologue thereof having an amino acid sequence that is at least 50% identical to that of Tsg101 or said Tsg101 fragment interacting with a second protein which is a retrovirus GAG polypeptide or a retrovirus GAG polypeptide fragment containing the P(T/S)AP late domain motif ~~or a homologue or derivative or fragment of said, or a homologue thereof having an amino acid sequence that is at least 50% identical to that of said~~ retrovirus GAG polypeptide or said retrovirus GAG polypeptide fragment.

13. (original): The isolated protein complex of Claim 12, wherein said retrovirus is a lentivirus.

14. (original): The isolated protein complex of Claim 13, wherein said lentivirus is a primate lentivirus.

15. (original): The isolated protein complex of Claim 14, wherein said primate lentivirus is selected from the group consisting of HIV-1, HIV-2, HIV-3, and simian immunodeficiency viruses.

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contd 16. (original): The isolated protein complex of Claim 13, wherein said lentivirus is a non-primate lentivirus selected from the group consisting of bovine lentiviruses, feline lentiviruses, and ovine/caprine lentiviruses.

17. (currently amended): An isolated protein complex comprising:

- (a) a first protein which is selected from the group consisting of
- (i) Tsg101 protein,
 - (ii) a Tsg101 protein homologue having an amino acid sequence at least 90% identical to that of Tsg101 and capable of interacting with HIV GAGp6,
 - (iii) a Tsg101 protein fragment containing the Tsg101 UEV domain, and
 - (iv) a fusion protein containing said Tsg101 protein, said Tsg101 protein homologue or said Tsg101 protein fragment; and
- (b) a second protein selected from the group consisting of
- (1) a retrovirus GAG polypeptide having the P(T/S)AP late domain motif,
 - (2) a homologue of said retrovirus GAG polypeptide, said homologue having an amino acid sequence at least 90% identical to that of said retrovirus GAG polypeptide and capable of interacting with Tsg101,
 - (3) a fragment of said retrovirus GAG polypeptide, said fragment being capable of interacting with Tsg101, and
 - (4) a fusion protein containing said retrovirus GAG polypeptide, said retrovirus GAG polypeptide homologue or said retrovirus GAG polypeptide fragment.

18. (original): The isolated protein complex of Claim 17, wherein said retrovirus is a lentivirus.

19. (original): The isolated protein complex of Claim 18, wherein said lentivirus is a primate lentivirus.

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20. (original): The isolated protein complex of Claim 19, wherein said primate lentivirus is selected from the group consisting of HIV-1, HIV-2, HIV-3, and simian immunodeficiency viruses.

21. (original): The isolated protein complex of Claim 19, wherein said lentivirus is a non-primate lentivirus selected from the group consisting of bovine lentiviruses, feline lentiviruses, and ovine/caprine lentiviruses.

22. (currently amended): An isolated protein complex comprising:

(a) a first protein which is selected from the group consisting of

(i) Tsg101 protein,

(ii) a Tsg101 protein homologue having an amino acid sequence at least 90% identical to that of Tsg101 and capable of interacting with HIV GAGp6,

(iii) a Tsg101 protein fragment containing the Tsg101 UEV domain, and

(iv) a fusion protein containing said Tsg101 protein, said Tsg101 protein homologue or said Tsg101 protein fragment; and

(b) a second protein selected from the group consisting of

(1) a primate lentivirus GAG polypeptide,

(2) a primate lentivirus GAG polypeptide homologue having an amino acid sequence at least 90% identical to that of said primate lentivirus GAG polypeptide and capable of interacting with Tsg101,

(3) a primate lentivirus GAGp6 protein,

(4) a primate lentivirus GAGp6 homologue having an amino acid

sequence at least 90% identical to that of HIV GAGp6 polypeptide and capable of interacting with Tsg101,

(5) a primate lentivirus GAGp6 fragment capable of interacting with Tsg101, and

(6) a fusion protein containing said primate lentivirus GAG polypeptide, said primate lentivirus GAG polypeptide homologue, said primate lentivirus GAGp6 protein, said primate lentivirus GAGp6 homologue or said primate lentivirus GAGp6 fragment.

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23. (original): An isolated protein complex comprising:

a first fusion protein having a Tsg101 protein fragment interacting with
a second fusion protein containing a fragment of HIV GAG polypeptide.

24.-43. (withdrawn)

44. (currently amended): A composition comprising:

(a) a first expression vector having a nucleic acid encoding a first protein which is selected from the group consisting of

(i) Tsg101 protein,

(ii) a Tsg101 protein homologue having an amino acid sequence at least 90% identical to that of Tsg101 and capable of interacting with HIV GAGp6,

(iii) a Tsg101 protein fragment containing the Tsg101 UEV domain, and

(iv) a fusion protein containing said Tsg101 protein, said Tsg101 protein homologue or said Tsg101 protein fragment; and

(b) a second expression vector having a nucleic acid encoding a second protein selected from the group consisting of

(1) HIV GAG polypeptide,

(2) a HIV GAG polypeptide homologue having an amino acid sequence at least 90% identical to that of HIV GAG polypeptide and capable of interacting with Tsg101,

(3) HIV GAGp6 protein,

(4) a HIV GAGp6 homologue having an amino acid sequence at least 90%

identical to that of HIV GAGp6 polypeptide and capable of interacting with Tsg101,
(5) a HIV GAGp6 fragment capable of interacting with Tsg101, and
(6) a fusion protein containing said HIV GAG polypeptide, said HIV GAG polypeptide homologue, said HIV GAGp6 protein, said HIV GAGp6 homologue or said HIV GAGp6 fragment.

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45. (currently amended): A host cell comprising:

(a) a first expression vector having a nucleic acid encoding a first protein which is selected from the group consisting of

- (i) Tsg101 protein,
- (ii) a Tsg101 protein homologue having an amino acid sequence at least 90% identical to that of Tsg101 and capable of interacting with HIV GAGp6,
- (iii) a Tsg101 protein fragment containing the Tsg101 UEV domain, and
- (iv) a fusion protein containing said Tsg101 protein, said Tsg101 protein homologue or said Tsg101 protein fragment; and

(b) a second expression vector having a nucleic acid encoding a second protein selected from the group consisting of

- (1) HIV GAG polypeptide,
- (2) a HIV GAG polypeptide homologue having an amino acid sequence at least 90% identical to that of HIV GAG polypeptide and capable of interacting with Tsg101,
- (3) HIV GAGp6 protein,
- (4) a HIV GAGp6 homologue having an amino acid sequence at least 90% identical to that of HIV GAGp6 polypeptide and capable of interacting with Tsg101,
- (5) a HIV GAGp6 fragment capable of interacting with Tsg101, and
- (6) a fusion protein containing said HIV GAG polypeptide, said HIV GAG polypeptide homologue, said HIV GAGp6 protein, said HIV GAGp6 homologue or said HIV GAGp6 fragment.

46. (original): The host cell of Claim 45, wherein said host cell is a yeast cell.

47. (original): The host cell of Claim 45, wherein said first and second proteins are expressed in fusion proteins.

48. (original): The host cell of Claim 45, wherein one of said first and second nucleic acids is linked to a nucleic acid encoding a DNA binding domain, and the other of said first and second nucleic acids is linked to a nucleic acid encoding a transcription-activation domain, whereby two fusion proteins can be produced in said host cell.

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cont'd 49. (original): The host cell of Claim 45, further comprising a reporter gene, wherein the expression of the reporter gene is determined by the interaction between the first protein and the second protein.

50. (currently amended): A host cell comprising:

(a) a first expression vector having a nucleic acid encoding a first protein which is selected from the group consisting of

- (i) Tsg101 protein,
- (ii) a Tsg101 protein homologue having an amino acid sequence at least 90% identical to that of Tsg101 and capable of interacting with HIV GAGp6,
- (iii) a Tsg101 protein fragment containing the Tsg101 UEV domain, and
- (iv) a fusion protein containing said Tsg101 protein, said Tsg101 protein homologue or said Tsg101 protein fragment; and

(b) a second expression vector having a nucleic acid encoding a second protein selected from the group consisting of

- (1) a retrovirus GAG polypeptide having the P(T/S)AP late domain motif,
- (2) a homologue of said retrovirus GAG polypeptide, said homologue having an amino acid sequence at least 90% identical to that of said retrovirus GAG polypeptide and capable of interacting with Tsg101,
- (3) a fragment of said retrovirus GAG polypeptide, said fragment being capable of interacting with Tsg101, and

(4) a fusion protein containing said retrovirus GAG polypeptide, said retrovirus GAG polypeptide homologue or said retrovirus GAG polypeptide fragment.

51.-60. (withdrawn)

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61. (new) An expression vector comprising:

(a) a first nucleic acid encoding a first protein which is selected from the group consisting of

(i) Tsg101,

(ii) a Tsg101 fragment containing the Tsg101 UEV domain,

(iii) a homologue of Tsg101 or said Tsg101 fragment, having an amino acid sequence at least 50% identical to that of Tsg101 or said fragment and capable of interacting with HIV GAGp6, and

(iv) a fusion protein containing Tsg101, said Tsg101, said Tsg101 fragment, or said homologue; and

(b) a second nucleic acid encoding a second protein selected from the group consisting of

(1) HIV GAG polypeptide,

(2) a HIV GAG polypeptide fragment,

(3) a homologue of HIV GAG polypeptide or said HIV GAG polypeptide fragment, having an amino acid sequence at least 50% identical to HIV GAG polypeptide or said HIV GAG polypeptide fragment and capable of interacting with Tsg101,

(4) HIV GAGp6 polypeptide,

(5) a HIV GAGp6 polypeptide fragment capable of interacting with Tsg101,

(6) a homologue of HIV GAGp6 polypeptide or said HIV GAGp6 polypeptide fragment, having an amino acid sequence at least 50% identical to that of HIV GAGp6 polypeptide or said HIV GAGp6 polypeptide fragment and capable of interacting with Tsg101, and

(7) a fusion protein containing said HIV GAG polypeptide, said HIV GAG polypeptide fragment, said HIV GAG polypeptide homologue, said HIV GAGp6 protein, said HIV GAGp6 polypeptide fragment, or said HIV GAGp6 polypeptide homologue.

62. (new) A host cell comprising the expression vector of Claim 61.

63. (new) A non-human host cell expressing:

(a) a first protein which is selected from the group consisting of

((i) Tsg101,

(ii) a Tsg101 fragment containing the Tsg101 UEV domain,

(iii) a homologue of Tsg101 or said Tsg101 fragment, having an amino acid sequence at least 50% identical to that of Tsg101 or said fragment and capable of interacting with HIV GAGp6, and

(iv) a fusion protein containing Tsg101, said Tsg101, said Tsg101 fragment, or said homologue; and

(b) a second nucleic acid encoding a second protein selected from the group consisting of

(1) HIV GAG polypeptide,

(2) a HIV GAG polypeptide fragment,

(3) a homologue of HIV GAG polypeptide or said HIV GAG polypeptide fragment, having an amino acid sequence at least 50% identical to HIV GAG polypeptide or said HIV GAG polypeptide fragment and capable of interacting with Tsg101,

(4) HIV GAGp6 polypeptide,

(5) a HIV GAGp6 polypeptide fragment capable of interacting with Tsg101,

(6) a homologue of HIV GAGp6 polypeptide or said HIV GAGp6 polypeptide fragment having an amino acid sequence at least 50% identical to that of HIV GAGp6 polypeptide or said HIV GAGp6 polypeptide fragment and capable of interacting with Tsg101, and

(7) a fusion protein containing said HIV GAG polypeptide, said HIV GAG polypeptide fragment, said HIV GAG polypeptide homologue, said HIV GAGp6 protein, said HIV GAGp6 polypeptide fragment, or said HIV GAGp6 polypeptide homologue.

64. (new) An isolated human host cell comprising:

(a) a first promoter operably linked to a first chimeric nucleic acid encoding a first protein selected from the group consisting of

((i) Tsg101,

(ii) a Tsg101 fragment containing the Tsg101 UEV domain,

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(iii) a homologue of Tsg101 or said Tsg101 fragment, having an amino acid sequence at least 50% identical to that of Tsg101 or said fragment and capable of interacting with HIV GAGp6, and

(iv) a fusion protein containing Tsg101, said Tsg101, said Tsg101 fragment, or said homologue; and

(b) a second promoter operably linked to a second chimeric nucleic acid encoding a second protein selected from the group consisting of

(1) HIV GAG polypeptide,

(2) a HIV GAG polypeptide fragment,

(3) a homologue of HIV GAG polypeptide or said HIV GAG polypeptide fragment, having an amino acid sequence at least 50% identical to HIV GAG polypeptide or said HIV GAG polypeptide fragment and capable of interacting with Tsg101,

(4) HIV GAGp6 polypeptide,

(5) a HIV GAGp6 polypeptide fragment capable of interacting with Tsg101,

(6) a homologue of HIV GAGp6 polypeptide or said HIV GAGp6 polypeptide fragment, having an amino acid sequence at least 50% identical to that of HIV GAGp6 polypeptide or said HIV GAGp6 polypeptide fragment and capable of interacting with Tsg101, and

(7) a fusion protein containing said HIV GAG polypeptide, said HIV GAG polypeptide fragment, said HIV GAG polypeptide homologue, said HIV GAGp6 protein, said HIV GAGp6 polypeptide fragment, or said HIV GAGp6 polypeptide homologue.